

ABSTRACT OF THE DISCLOSURE

A hydrogen-purification membrane comprises a Pd alloy film joined to one surface of a porous support substrate. Each pore in the porous support substrate is such that between the thickness  $T$  of the porous support substrate, the opening diameter  $D_1$  of the pore on the side joined to the Pd alloy film and the opening diameter  $D_2$  of the pore on the opposite side, there are relations 5 represented by  $1.0 \leq D_1/T \leq 5.0$  and  $1.0 \leq D_2/T \leq 5.0$ , and between the opening diameter  $D_1$  of the pore on the side joined to the Pd alloy film, the opening diameter  $D_2$  of the pore on the opposite side and the opening diameter  $D_3$  of the narrowest portion of the pore there are relations 10 represented by  $D_3/D_1 < 0.8$ ,  $D_3/D_2 < 0.9$  and  $D_3 < 250 \mu\text{m}$ . Furthermore, the total opening area of the pores on the side joined to the Pd alloy film accounts for 20 to 80% of 15 the area of the porous support substrate.